

REPORT REPRINT

Context defines the value of data

APRIL 17 2019

By Joshua Levine

Data becomes most valuable when we see beyond the numbers to the underlying story they tell. AI, machine learning, data science and data analytics bring huge amounts of data to power the 'context economy.' Context defines the value of data for businesses: information without context is worthless, while information with context is essential for delivering personalized experiences.

THIS REPORT, LICENSED TO MEMSQL, DEVELOPED AND AS PROVIDED BY 451 RESEARCH, LLC, WAS PUBLISHED AS PART OF OUR SYNDICATED MARKET INSIGHT SUBSCRIPTION SERVICE. IT SHALL BE OWNED IN ITS ENTIRETY BY 451 RESEARCH, LLC. THIS REPORT IS SOLELY INTENDED FOR USE BY THE RECIPIENT AND MAY NOT BE REPRODUCED OR RE-POSTED, IN WHOLE OR IN PART, BY THE RECIPIENT WITHOUT EXPRESS PERMISSION FROM 451 RESEARCH.



Introduction

Becoming data-driven isn't simply about adopting the latest technologies. It also requires organizational and cultural changes to increase the influence of senior executives, data analysts, developers and other data consumers in the selection and adoption of those technologies, as well as executive buy-in to ensure that recognition of the importance of data and a greater focus on gaining competitive advantage is at the heart of the business.

451 TAKE

Data is no longer static, disjointed bits of information. It is becoming part of the decision-making process through transformation into business insight. Three-quarters of corporate survey respondents in a 451 Research study said that data will become more important to their organization in the next 12 months. Our survey findings reveal that companies are adopting data-driven strategies at an accelerating pace. Notably, the most 'data-intensive' ones are creating value for their businesses and customers at a far greater level than those organizations that continue to be 'data drifters.'

Quantum change

In his 2015 book *Data-ism*, Steve Lohr recounts an interview with MIT economist Erik Brynjolfsson: "The data groundwork has been laid in the steady digitization of business in recent years. In major corporations, he estimates that 90% of what companies do today, from communications to marketing to manufacturing, is either created in digital form (like email or documents) or tracked digitally (like barcodes and radio tags). In the 1990s, Brynjolfsson figures that only about 20% of corporate activity left a digital footprint. 'This explosion of digitization is a quantum change,' he says."

Yes, it is. And the latest numbers give us some idea of the magnitude of this change, for example:

- There are 2.5 quintillion bytes of data created each day at our current pace, but that pace is only accelerating with the growth of the Internet of Things. Over the last two years alone, 90% of the data in the world was generated.
- More than 3.7 billion humans use the internet – a growth rate of 7.5% over 2016.
- On average, Google now processes more than 40,000 searches every second, or 3.5 billion searches per day.
- Acxiom claims 1,500 data points for each of the 500 million people in its database, including most US adults.
- Supply chains have over 50 times more data available to them today than they had just five years ago.

"To the human mind, big data is meaningless noise; to computers, it is an information mine," writes Dan Ciuriak at the Centre for International Governance Innovation. "It is precisely the ability of computers to extract systematic information out of this noise that underpins the value proposition of big data and the algorithms built on it."

Those that make the significant capital investments required to exploit big data own the data, and are the big winners; everyone else has to pay to access it. Accordingly, information asymmetry between human and machine is at the foundation of the data-driven economy and makes it prone to market failure, says Ciuriak. Citing various research on the matter, he explains that the initial investment cost to capture, assemble and process data is high, but the marginal cost of expanding data assets is very low.

"Indeed, much of the data now being collected is the by-product of activity using digital infrastructure, and the cost of expanding data capital is essentially the cost of expanding storage capacity. As well, the cost of distributing digitized products that help generate the data exhaust is also low, given zero or near-zero marginal

REPORT REPRINT

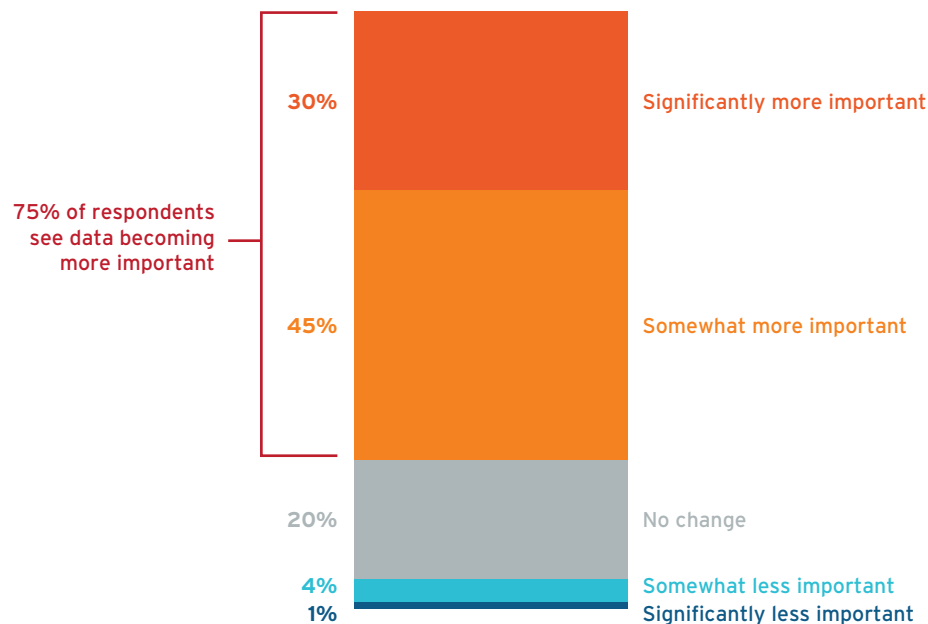
production costs for digital products, and near-frictionless commerce enabled by the internet and globalization, which facilitates the more efficient firms to capture greater market share. This makes the economies of scale in the data-driven economy steep.”

The companies that are most well endowed with data resources are Alphabet, Amazon, Apple, Facebook and Microsoft. Together, this quintet has a total market value of \$3.7 trillion, equal to 18% of the 2018 GDP of the US, the world’s largest economy. Although vast data is concentrated within these organizations, we see a majority of companies – large and small – expanding the application of data to support decision-making and improve business processes and operations. As 451 Research data shows, 75% of corporate survey respondents see data becoming become more important to their organization in the year ahead.

Figure 1: Importance of Data Next 12 Months

Source: 451 Research

Q: In 12 months, do you think data will be more important to your organization, less important, or will be no change?



Naturally, some organizations are more data-driven than others. Companies in finance and manufacturing are using data to drive strategic decision-making processes more so than other verticals. Data-driven insight helps improve manufacturing operations and processes, supply chain optimization, sales and marketing effectiveness, and resource allocation – providing tangible proof points that digital transformation can deliver on its promise of improved business outcomes. Those that are more pragmatic with regard to technology adoption are by design the ‘show me the data first’ types. Consequently, they are more data-driven than their early-adopter counterparts.

Getting it down to a science

451 Research has found that companies are analyzing data from a range of sources, demonstrating that data science is in action, even though the degree to which it is executed differs across organizations:

- The most data-driven companies are processing data from a greater number of sources, on average, and are noticeably ahead of the least data-driven in analyzing data from nontraditional sources.
- For example, nearly three-quarters of these ‘data drivers’ surveyed are analyzing customer behavior data, compared with less than half of the ‘data drifters.’

REPORT REPRINT

Enterprise data science requires more than merely algorithms to aid decision-making, although they are often the fundamental aspect of it. An ecosystem of software is necessary, including the correct supporting data processing and storage platform, as well as operational monitoring and management software – and more.

Data science is far easier and faster to carry out than it was a decade ago, when it was still in its infancy. The ready availability of machine learning and AI frameworks, languages and tools, as well as the growing corporate comfort level with cloud platforms and the increasing adoption of open source technologies for storage, data processing, management and analytics represent some of the core advancements that have enabled data science activity on a scale and level that wasn't previously possible.

Data science has risen to become a linchpin behind organizations becoming data-driven. The endgame is to base all corporate decision-making on data – rather than a combination of experience and intuition, which have been assisted by data and various forms of analytics to make business decisions for decades. Although data analytics overlaps with data science, there are important differences which come down to the complexity of analysis and whether it is forward-looking or not. Data science essentially provides more advanced forms of analysis, typically involving AI and machine learning, and is used for predictive and prescriptive analysis. That said, data analytics – while largely concerned with surfacing present and historical insight – is now embracing forward-looking analysis, too, via the integration of AI and machine learning.

Four years ago, Lohr wrote in his book: “Data should be the vital raw material that strengthens and improves the machinery of decision-making. Data is the input, and the output is smarter choices and wiser judgments. But the data paradox is that a world richer and richer in data has so far yielded little payoff in most fields. The supply of data races ahead, while the ability to use it lags badly.” As 451 Research survey findings reveal, things have dramatically changed during the intervening years.